

AGENCY USE ONLY

PERMIT NO.:

MTG010150

Date Rec'd.:

11/4/13

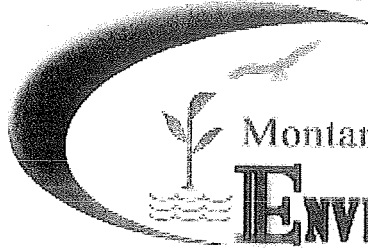
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0

Check No.:

Rec'd By:

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Montana Department of

ENVIRONMENTAL QUALITY

WATER PROTECTION BUREAU

FORM
NOI

Notice of Intent (NOI) for Montana Pollution Discharge Elimination System Application for New and Existing Concentrated Animal Feeding Operations

The Application form is to be completed by the owner or operator of a Concentrated Animal Feeding Operation (CAFO) or Aquatic Animal Production Facility. Please read the attached instructions before completing this form. You must print or type legibly; forms that are not legible or are not complete will be returned. You must maintain a copy of the completed application form for your records.

Section A - Application Status (Check one):

RECEIVED

☐ New

No prior application submitted for this site.

☐ Resubmitted

Permit Number: MTG _____

NOV 04 2013

☒ RenewalPermit Number: MTG 0 1 0 1 5 0

DEQ/WFB

PERMITTING & COMPLIANCE DIV.

☐ Modification

Permit Number: MTG _____

Section B - Facility or Site Information (See instruction sheet.):

Site Name Duncan Ranch ColonySite Location Section 19 T8N R14ENearest City or Town Harlowton, MTCounty WheatlandLatitude 46 26.610NLongitude 110 01.489WDate Facility began operation? 1963Is this facility or site located on Indian Lands? ☐ Yes ☒ No

Section C - Applicant (Owner/Operator) Information:

Owner or Operator Name Abe WaldnerMailing Address P.O. Box 248City, State, and Zip Code Harlowton, MT 59036Phone Number 406-632-4147Is the person listed above the owner? ☐ Yes ☒ NoStatus of Applicant (Check one) ☐ Federal ☐ State ☒ Private ☐ Public ☐ Other (specify) _____

Section D - Existing or Pending Permits, Certifications, or Approvals: ☒ None

☐ MPDES _____ ☐ RCRA _____
☐ PSD (Air Emissions) _____ ☐ Other _____
☐ 404 Permit (dredge & fill) _____ ☐ Other _____

Section E - Standard Industrial Classification (SIC) Codes:

Provide at least one SIC code which best reflects the activity of project described in Section H.

Code	A. Primary	Code	B. Second
1	213	2	252
Code	C. Third	Code	D. Fourth
3	251	3	241

Section F - Facility or Site Contact Person/Position:Name and Title, or Position Title Abe Waldner, Farm BossMailing Address P.O. Box 248City, State, and Zip Code Harlowton, MT 59036Phone Number 406-632-4147, x205**Section G - Receiving Surface Waters(s):**

Outfall/Discharge Locations: For each outfall, List latitude and longitude to the nearest second and the name of the receiving waters

Outfall Number	Latitude	Longitude	Receiving Surface Waters
001	46.06453	110.01200	Musselshell River
002			
003			
004			
005			

Map: Attach a topographic map extending one mile beyond the property boundaries or the site activity identified in Section B depicting the facility or activity boundaries, major drainage patterns, and the receiving surface waters, stated above. Also identify the specific location of the production area, and land application area(s).

Is the receiving water on the 303(d) list for nutrients (nitrogen and/or phosphorus) ☐ Yes ☒ No

No outfalls at this property.

Section H – Concentration Animal Feeding Operation Characteristics

Waste Production, Storage and Disposal

Animal type	Number in Open Confinement	Number Housed Under Roof
<input checked="" type="checkbox"/> Mature Dairy Cows		3
<input type="checkbox"/> Dairy Heifers		
<input type="checkbox"/> Veal Calves		
<input type="checkbox"/> Cattle (not dairy or veal)		
<input checked="" type="checkbox"/> Swine (55 lbs or over)		2200
<input checked="" type="checkbox"/> Swine (55 lbs or under)		1200
<input type="checkbox"/> Horses		
<input checked="" type="checkbox"/> Sheep or Lambs	1600	2300
<input type="checkbox"/> Turkeys		
<input type="checkbox"/> Chickens (broilers)		
<input checked="" type="checkbox"/> Chickens (layers)		8000
<input checked="" type="checkbox"/> Ducks		700
<input checked="" type="checkbox"/> Other (Specify: <u>Chicken pullets</u>)		1000
<input type="checkbox"/> Other (Specify: _____)		
<input type="checkbox"/> Other (Specify: _____)		

Manure, Litter and/or Wastewater Production and Use.

How much manure, litter, and process wastewater is generated annually by the facility?

Solid (tons): 875 Liquid/Slurry (gallons): 1.7 MG

If land applied, how many acres of land under control of the permit applicant are available to apply the manure, litter, or process wastewater generated from the facility? (Note: Do not include setback distances in available acreage)
8,000 Acres

How much manure, litter, and process wastewater is transferred to other persons per year? (estimated) Solid (tons): 0 Liquid/Slurry (gallons): 0

Were the containment structures built after February 2006?

- ☐ Do the waste containment structures have 10 feet of separation between the pond bottom and any bedrock formations?
- ☐ Do the waste containment structures have 4 feet of separation from the pond bottom and any ground water?
- ☐ Were any of the waste containment structures built within 500 feet of any existing well?

Type of Containment/Storage	Total Capacity	Units (gallons or tons)	Days of Storage
<input type="checkbox"/> Anaerobic Lagoon			
<input checked="" type="checkbox"/> Storage Pond #1	3 MG	gals	600
<input type="checkbox"/> Storage Pond #2	1 MG	gals	200
<input type="checkbox"/> Storage Pond #3			
<input type="checkbox"/> Storage Pond #4			
<input type="checkbox"/> Storage Pond #5			
<input type="checkbox"/> Above Ground Storage Tank			
<input checked="" type="checkbox"/> Below Ground Storage Tank #1	23,900	gal	270
<input checked="" type="checkbox"/> Below Ground Storage Tank #2	19,300	gal	40
<input type="checkbox"/> Underfloor Pits			
<input type="checkbox"/> Roofed Storage Shed			
<input type="checkbox"/> Concrete Pad			
<input type="checkbox"/> Impervious Soil Pad			
<input checked="" type="checkbox"/> Other (Specify: Concrete bunker)	630	tons	260
<input type="checkbox"/> Other (Specify:)			

Physical Data for CAFO

Nutrient Management Plan

All Concentrated Animal Feeding Operations seeking permit coverage after July 31, 2007 are required to complete and implement a Nutrient Management (NMP). The NMP must be submitted to the Department using the form provided by the Department (Form NMP). Check the box below that applies and provide the required information. The NMP must be developed in accordance with ARM 17.30.1334 and implemented upon the effective date of permit coverage. (Check One)

☒ Does the facility have an NMP?

Date NMP was developed: 10/31/08

Date NMP was last modified: 10/31/13

☐ NMP has not been prepared; provide detailed explanation below

Section I – Supplemental Information

Section J - CERTIFICATION**Permittee Information:**

This Form NMP must be completed, signed, and certified as follows:

- For a corporation, by a principal officer of at least the level of vice president;
- For a partnership or sole proprietorship, by a general partner or the proprietor, respectively; or
- For a municipality, state, federal, or other public facility, by either a principal executive officer or ranking elected official.

All Permittees Must Complete the Following Certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information; including the possibility of fine and imprisonment for knowing violations. [75-5-633, MCA]

A. Name (Type or Print)

Abe Waldner

B. Title (Type or Print)

Farm Boss

C. Phone No.

406-632-4717

D. Signature**E. Date Signed**

31/10/2013

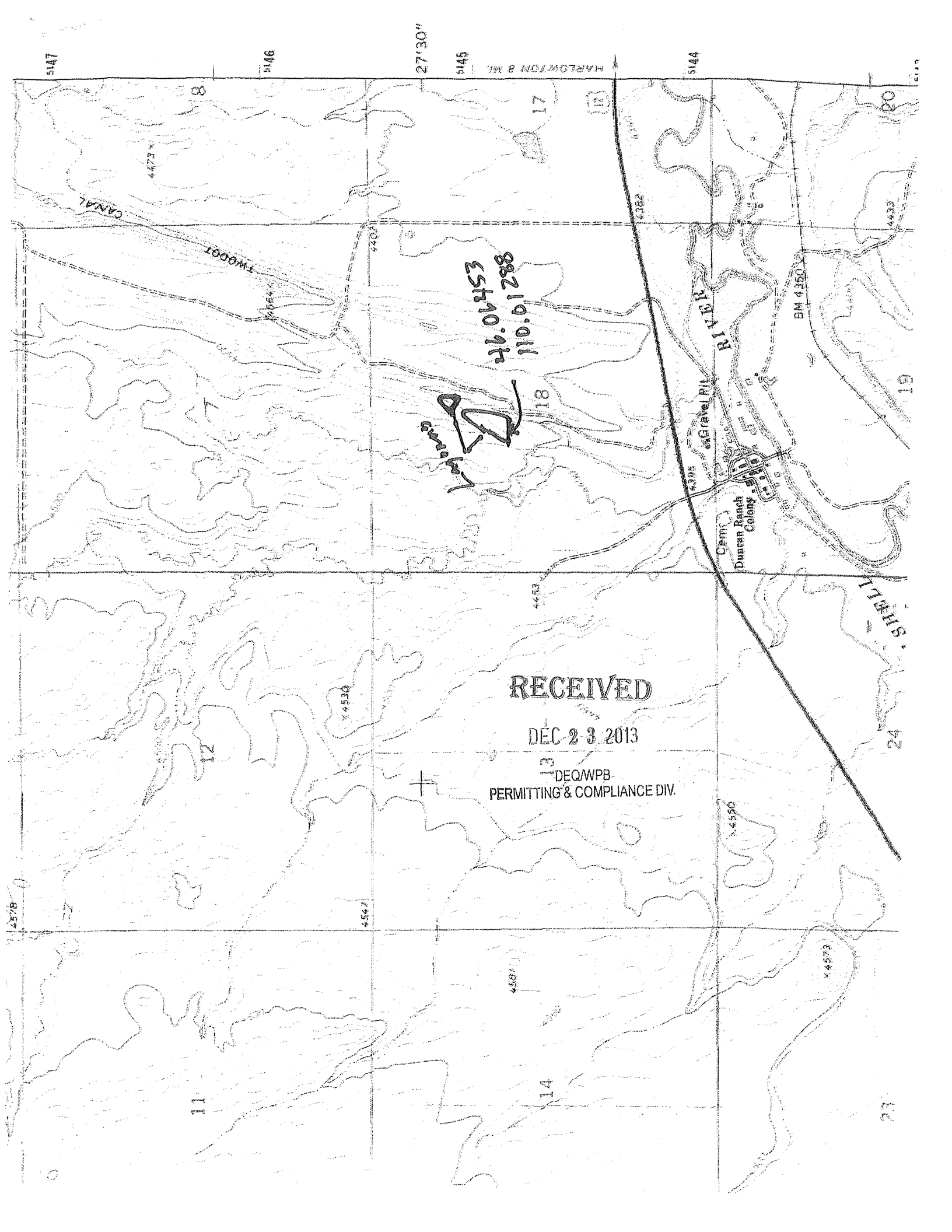
The Department will not process this form until all of the requested information is supplied, and the appropriate fees are paid. Return this form (NOI) and the applicable fee to:

Department of Environmental Quality
Water Protection Bureau
PO Box 200901
Helena, MT 59620-0901
(406) 444-3080

RECEIVED

NOV 04 2013

DEQ/WPB
PERMITTING & COMPLIANCE DIV.



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5146

27'30"

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HARLOWTON & M.L.

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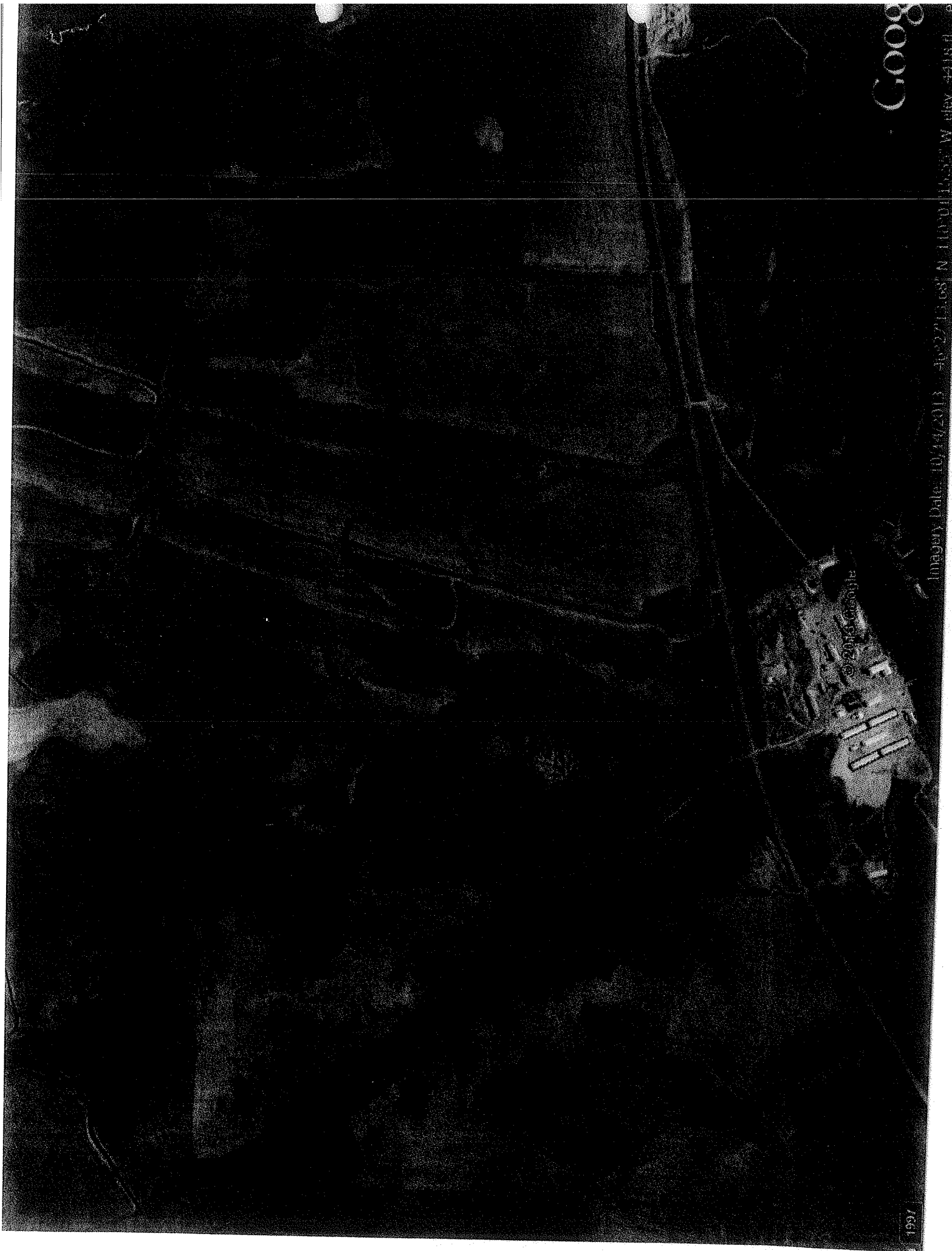
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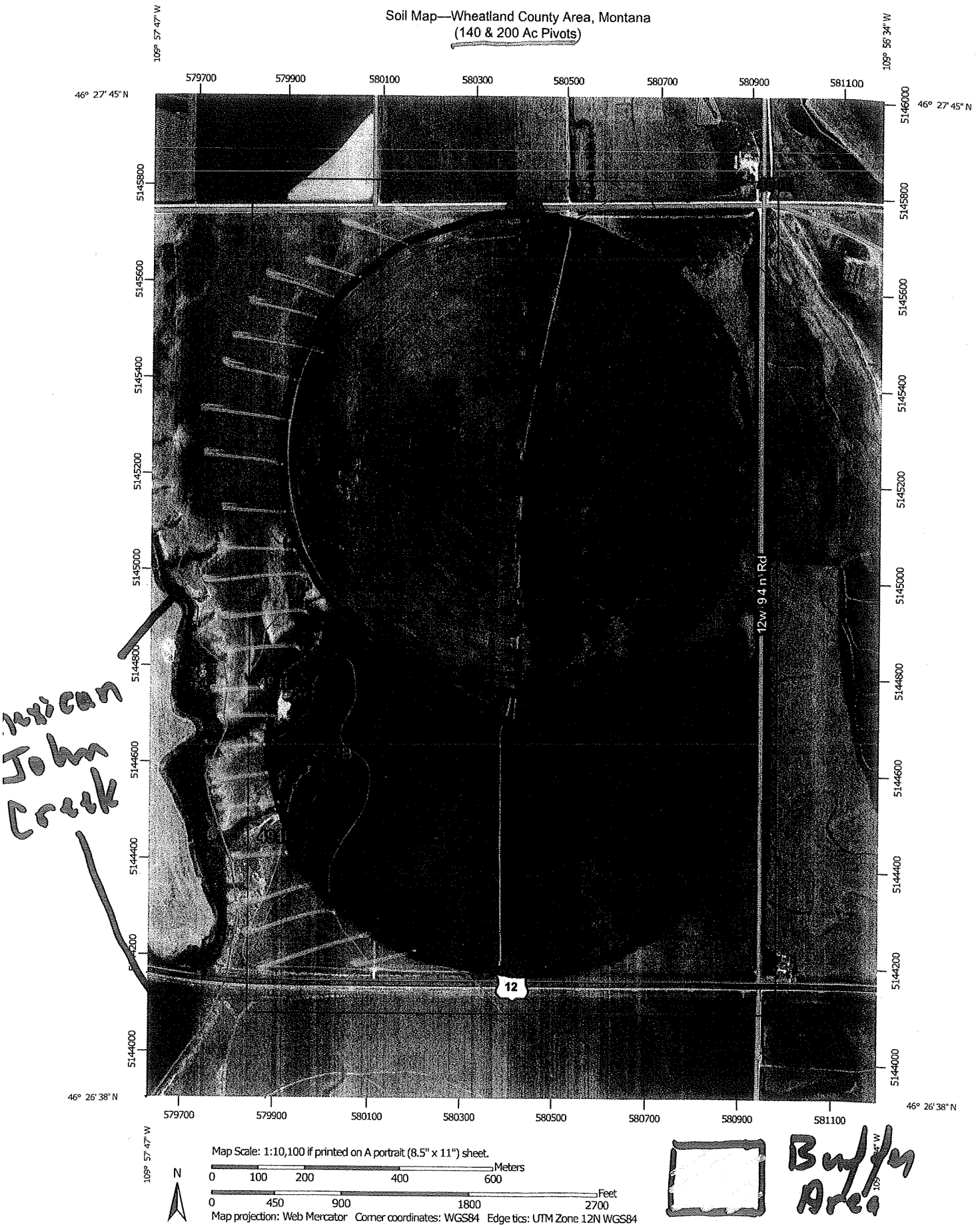


Google

Imagery Date: 10/14/2013 -46°27'13.63" N 110°01'13.53" W elev: 4418 ft

© 2013 Google

Soil Map—Wheatland County Area, Montana
(140 & 200 Ac Pivots)




Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey

11/25/2013
Page 1 of 3

Map Unit Legend

Wheatland County Area, Montana (MT624)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
476B	Ethridge clay loam, 1 to 4 percent slopes, fan	413.0	84.4%
484A	Rothiemay loam, 0 to 2 percent slopes	28.7	5.9%
494E	Crago gravelly loam, 8 to 35 percent slopes, fan	16.2	3.3%
497B	Musselshell-Crago complex, 2 to 4 percent slopes	31.3	6.4%
Totals for Area of Interest		489.2	100.0%

AGENCY USE ONLY				
PERMIT NO.: <u>M T 6 0 1 0 1 5 0</u>	Date Rec'd.: <u>11/4/13</u>	Amount Rec'd.:	Check No.:	Rec'd By:
 <div style="display: inline-block; vertical-align: middle; text-align: center;"> <p>Montana Department of</p> <h1 style="margin: 0;">ENVIRONMENTAL QUALITY</h1> <p>WATER PROTECTION BUREAU</p> </div>				
FORM NMP	<h2 style="margin: 0;">Nutrient Management Plan</h2>			
<p>READ THIS BEFORE COMPLETING FORM: Before completing this form (Form NMP), Concentrated Animal Feeding Operation (CAFO) operators need to read the General Permit, particularly Part IV.A. CAFO operators also need to read the "Instructions For filling out Form NMP," found at the back of this form. Form NMP is intended to help CAFO operators develop a site-specific Nutrient Management Plan, in compliance with Part IV.A of the General Permit and all applicable State rules and statutes. Your Nutrient Management Plan must be maintained at the site as required in Part III of the General Permit. Sections B and C on your Form NMP must state the information exactly the same way as it was stated on the most recently submitted version of your NOI-CAFO. Attach additional pages as necessary, indicating the corresponding section number on this NMP form. The 2013 General Permit, current fee schedule, and related forms are available from the Water Protection Bureau at (406) 444-3080 or http://www.deq.mt.gov/wqinfo/MPDES/CAFO.asp</p>				
<p>Section A – NMP Status:</p> <div style="display: flex; justify-content: space-between;"> <div style="width: 60%;"> <p><input type="checkbox"/> New No prior NMP submitted for this site.</p> <p><input type="checkbox"/> Resubmitted Previous NMP found incomplete.</p> <p><input type="checkbox"/> Modification Change or update to existing NMP.</p> <p><input checked="" type="checkbox"/> New 2013 New 2013 version of NMP.</p> </div> <div style="width: 35%; text-align: right; padding-top: 20px;"> <p style="font-size: 1.2em; opacity: 0.5;">RECEIVED</p> <p style="font-size: 1.2em; opacity: 0.5;">NOV 04 2013</p> <p style="font-size: 0.8em; opacity: 0.5;">DEQ/WFB PERMITTING & COMPLIANCE DIV</p> </div> </div>				
<p>Section B – Facility Information:</p> <p>Facility Name <u>Duncan Ranch Colony</u></p> <p>Facility Location <u>Section 19 T8N R14E</u></p> <p>Nearest City of Town <u>Harlowton, MT 59036</u> County <u>Wheatland</u></p>				
<p>Section C – Applicant (Owner/Operator Information):</p> <p>Owner or Operator Name <u>Abe Waldner</u></p> <p>Mailing Address <u>P.O. Box 248</u></p> <p>City, State, and Zip code <u>Harlowton, MT 59036</u></p> <p>Facility Phone Number <u>406-632-4147, Ext 205</u></p> <p>Email <u>None</u></p>				

Section D - NMP Minimum Elements:

1. Livestock Statistics		
Animal Type and number of animals	# of Days on Site (per year)	Annual Manure Production (tons, cu. yds. or gal)
1. 3 dairy cows	365	32,400 gals
2. 8000 laying hens	365	170,000 gals
3. 1000 pullets	365	
4. 2200 pigs (> 55#)	365	1,500,000 gals
5. 1200 piglets (< 55#)	365	325 tons
6. 1600 ewes	35	550 tons
7. 2300 lambs	175	
8.		

} Total Pigs

Method used for estimating annual manure production:

Weigh loads of solid manure and record number of loads hauled. Record amount of liquid hauled and/or pumped.

2. Manure Handling**a. Describe Manure handling at the facility:**

Manure is separated into solids and liquid. Liquid is pumped to holding pond. Liquid is pumped via pipeline to pivots or spread with tanker truck. Solids and solid manure are spread onto fields.

b. Frequency of Manure Removal from confinement areas:

About once every 30-60 days.

c. Is this manure temporarily stored in any location other than the confinement area? ☒ Yes ☐ No
If so then how and where?

Solid manure is stored in concrete bunker. Liquid is stored in concrete pits and earthen ponds.

d. Is manure stored on impervious surface? ☒ Yes ☐ No

If yes, describe type and characteristics of this surface:

Concrete bunker is has impervious floor and 8 foot walls. Concrete pits are buried in ground and are tanks.

3. Waste Control Structures

Waste Control Structures (name/type)	Length (ft.)	Width (ft.)	Depth (ft.)	Volume (cubic ft. or gallons)	Number of days of storage
1. Concrete Bunker	250	60	8	120,000 ft ³	260
2. Evap pond				4 MG	800
3. Dairy pit	20	20	8	23,900 gal	270
4. Chicken pit	18	18	8	19,300 gal	40
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					

What is the 24 hr. 25 yr. storm event at this facility 2.80"

Production area: 4 acres. Type of lot (dirt or paved): Both

Area contributing drainage form outside CAFO that enters confinement areas and waste storage, conveyance, or treatment structures: 0 acres.

What is the annual precipitation during the critical storage period 5.67"

How much freeboard do the pond(s) have 5 feet

4. Disposal of Dead Animals.

Describe how dead animals are disposed of at this facility:

All dead animals except chickens are buried. Chickens are incinerated.

5. Clean Water Diversion Practices

Describe how clean water is diverted from production area:

All production areas are in covered area. Rain gutters and dikes are used to keep water out of buildings.

6. Prohibiting Animals and Wastes from Contact with State Waters

Describe how animals and wastes are prohibited from direct contact with state waters:

Cows, chickens, and hogs are always enclosed in buildings so they cannot get to state waters

Sheep and lambs are confined in buildings for period of days listed above. Otherwise, they are out in pastures away from state waters.

Describe how Chemicals and other contaminants are handled on-site:

Vaccines and medicines are kept in locked areas. Farm chemicals are kept inside a quonset building and storage unit, so they are out of the weather.

7. Best Management Practice (BMPS)

Describe in detail all temporary, permanent and structural BMPS which will be used to control runoff of pollutants from facility's production area. Indicate the location of these measures. If BMPS are not installed include a schedule for implementation of each of these measures. Examples of BMP measures could include but are not limited to: constructing ditches, terraces,, and waterways above and open lot to divert clean water run on; installing gutters, downspouts and buried conduits to divert roof drainage; providing more roofed area: decreasing open lot surface area; repairing of adjusting water systems to minimize water wastage; using practical amounts of water for cooling purposes; recycling water if practical and applicable.

Production Area BMP's

Ditches around ponds to divert run-off water, rain gutters on buildings, dikes around buildings, new separator system, confined animals are all inside and manure is a in closed system.

Describe in detail all temporary, permanent and structural Best Management Practices (BMPs) which will be used to control runoff of pollutants from facility's land production area. Indicate the location of these practices. If not already in use, include a schedule for implementation of each of these measures. Attached details and specifications may be used to supplement this description. Examples of BMP measures could include but are not limited to: maintaining setbacks from surface waters for manure applications; managing irrigation practices to prevent ponding of wastewater on land application sites;

never spray irrigating waste on to frozen ground: consulting with the Department prior to applying any liquid waste to frozen or snow-covered ground; applying wastes at agronomic rates.

Land Application BMP's

Soil sample annually, apply manure at agronomic rates, do not apply any form of manure when soil is frozen, fields are bordered by grass so any run-off passes through grass before getting to draws.

Buffers ☐ Yes ☒ No

Conservation Tillage ☒ Yes ☐ No

Constructed Wetlands ☐ Yes ☒ No

Grass Filter ☒ Yes ☐ No

Infiltration Field ☐ Yes ☒ No

Residue Management ☒ Yes ☐ No

Set backs ☐ Yes ☒ No

Terrace ☐ Yes ☒ No

Other examples

No-till farming to reduce erosion.

8. Implementation, Operation, Maintenance and Record Keeping – Guidance

The permittee is required to develop guidance addressing implementation of NMP, proper operation and maintenance of the facility, and record keeping as described in Part 2 of the permit.

Has a guidance document been developed for the facility? ☒ Yes ☐ No

Certify the document address the following requirements:

Implementation of the NMP: ☒ Yes ☐ No

Facility operation and maintenance: ☒ Yes ☐ No

Record keeping and reporting ☒ Yes ☐ No

Sample collection and analysis: ☒ Yes ☐ No

Manure transfer ☒ Yes ☐ No

Provide name, date and location of most recent documentation:

2008 NMP, 10/31/2008 which is located at Abe Waldner's residence.

If your answer to any of the above question is no, provide explanation:

Section E – Land Application

Will manure be land applied to land either owned, rented, or leased by the owner or operator of the facility?

- ☒ Yes If yes, then the information requested in Section E must be provided.
☐ No If no, then provide an explanation of how animal waste at this facility are managed.

Photos and/or Maps

Attach an aerial photograph or map of the site where manure is to be applied. (Use multiple photos/maps if necessary to show required details.) The photo(s)/map(s) must be printed on no larger than an 11"X 17" piece of paper, and must clearly identify the following items:

- Individual field boundaries for all planned land application areas
- A name, number, letter or other means of identifying each individual land application field
- The location of any downgradient surface waters.
- The location of any downgradient open tile line intake structures
- The location of any downgradient sinkholes
- The location of any downgradient agricultural well heads
- The location of all conduits to surface waters
- The specific manure/waste handling or nutrient management restrictions associated with each land application field
- The soil type(s) present and their locations within the individual land application field(s)
- The location of buffers and setbacks around state surface waters, well heads, etc.

Land Application Equipment Calibration

Describe the type of equipment used to land apply wastes and the calibration procedures:

Truck w/ manure box or tanker w/ spreader. Truckloads are recorded & acres applied are GPSed.

Manure Sampling and Analysis Procedures

A representative manure sample will be analyzed a minimum of once annually for Total Nitrogen, and Total Phosphorus. Analysis results will be reported in lbs/ton or lbs/1,000 gal. Results of these analyses will be used in determining rates for manure, litter, and process wastewater.

Manure Sample collection will occur according to ARM 17.30.1334

Other (describe)

Solid manure is randomly sampled with spade. Liquids are grab sampled from ponds.

Soil Sampling and Analysis Procedures

Representative soil (composite) samples from the top 6 inches layer of soil for each field where manure will be applied must be analyzed for phosphorus content at least once every three years. Analyses will be conducted by a qualified laboratory, using the Olsen P test. Results will be reported in parts per million (ppm) and will be used in determining application rates for manure, litter, and process wastewater

Soil samples collection will occur according the methods in ARM 17.30.1334

Other (describe)

(10) 0-6" and (5) 6-24" cores are randomly collected per field.

Phosphorus Risk Assessment

The permittee shall assess the risk of phosphorus contamination of state waters. An assessment shall be conducted for each field, under the control of the operator, to which manure, litter or process wastewater will or

may be applied. If a new field is added in the future, then the permittee must submit a revised (modified) NMP. The permittee has the option of using Method A or Method B (below) to complete the assessment. Copies of all tables and calculations used to complete the assessments, as well as the results of the assessments, shall be submitted to the Department and copies shall be maintained on-site at the facility and available for Departmental review. The results of the assessments shall be used to determine the appropriate basis for land application of wastes from the facility.

Method Used

Indicate which method will be used to determine phosphorus application:

Method A – Representative Soil Sample

Method B – Phosphorus Index

Method A – Representative Soil Sample

- Obtain one or more representative soil sample(s) from the field per 17.30.1334
- Have the sample analyzed for Phosphorus by a qualified lab. The “Olsen P test” must be used for the analysis, and the result must be reported in parts per million (ppm)
- Using the results of the Olsen P test, determine application basis according to the Table below.

Soil Test

Olsen P Soil Test Results (ppm)	Application Basis
<25.0	Nitrogen Needs of Crop
25.1 - 100.0	Phosphorus Needs of Crop
100.0 – 150.0	Phosphorus Needs up to Crop Removal Rate
>150.0	No Application allowed

Method B – Phosphorus Index

- Complete a phosphorus Index according to the crop grown on each field. Complete table in Appendix A to calculate phosphorus index. For information on filling out specific sections in Appendix A, please refer to the method as described in Natural Resource Conservation Service (NRCS), Agronomy Technical Note MT-77 (rev3), January 2006.
- Using the calculated Total Phosphorus Index Value, assign the overall site/field vulnerability to phosphorus loss according to the table below.

Total Phosphorus

Total Phosphorus Index Value	Site Vulnerability to Phosphorus Loss
<11	Low
11-21	Medium
22-43	High
>43	Very High

- Using the calculated Site Vulnerability to Phosphorus Loss, determine the appropriate application basis according to the table below.

Site Vulnerability to Phosphorus Loss	Application Basis
Low	Nitrogen Needs
Medium	Nitrogen Needs
High	Phosphorus Need Up to Crop Removal
Very High	Phosphorus Crop Removal or No Application

The applicant has 2 ways in which to report how manure or process wastewater application rates can be reported to DEQ.

1. Linear Approach. Expresses rates of application as pounds of nitrogen and phosphorus. CAFOs selecting the linear approach to address rates of application must include in the NMP submitted to the permitting authority the following information for each crop, field, and year covered by the NMP, which will be used by the permitting authority to establish site-specific permit terms:

- The maximum application rate (pounds/acre/year of nitrogen and phosphorus) from manure, litter, and process wastewater.
- The outcome of the field-specific assessment of the potential for nitrogen and phosphorus transport from each field. [If a state does not have an N transport risk assessment, the NMP must document any basis for assuming that nitrogen will be fully used by crops.] The CAFO must specify any conservation practices used in calculating the risk rating.
- The crops to be planted or any other uses of a field such as pasture or fallow fields.
- The realistic annual yield goal for each crop or use identified for each field.
- The nitrogen and phosphorus recommendations from in ARM 17.30.1334 (technical standard) for each crop or use identified for each field.
- Credits for all residual nitrogen in each field that will be plant-available.
- Consideration of multi-year phosphorus application. For any field where nutrients are applied at a rate based on the crop phosphorus requirement, the NMP must account for single-year nutrient applications that supply more than the crop's annual phosphorus requirement.
- All other additions of plant available nitrogen and phosphorus (i.e., from sources other than manure, litter, or process wastewater or credits for residual nitrogen).
- The form and source of manure, litter, and process wastewater to be land-applied.
- The timing and method of land application. The NMP also must include storage capacities needed to ensure adequate storage that accommodates the timing indicated.
- The methodology that will be used to account for the amount of nitrogen and phosphorus in the manure, litter, and wastewater to be applied.
- Any other factors necessary to determine the maximum application rate identified in accordance with this Linear Approach.

2. Narrative Rate Approach. Expresses a narrative rate of application that results in the amount, in tons or gallons, of manure, litter, and process wastewater to be land applied. CAFOs selecting the narrative rate approach to address rates of application must include in the NMP submitted to the permitting authority the following information for each crop, field, and year covered by the NMP, which will be used by the permitting authority to establish site-specific permit terms:

- The maximum amounts of nitrogen and phosphorus that will be derived from all sources of nutrients (pounds/acre for each crop and field).
- The outcome of the field-specific assessment of the potential for nitrogen and phosphorus transport from each field. The CAFO must specify any conservation practices used in calculating the risk rating.
- The crops to be planted in each field or any other uses of a field such as pasture or fallow fields, including alternative crops if applicable. Any alternative crops included in the NMP must be listed by field, in addition to the crops identified in the planned crop rotation for that field.
- The realistic annual yield goal for each crop or use identified for each field for each year, including any alternative crops identified.
- The nitrogen and phosphorus recommendations from *[the permitting authority to specify acceptable sources]* for each crop or use identified for each field, including any alternative crops identified.
- The methodology (including formulas, sources of data, protocols for making determination, etc.) and actual data that will be used to account for: (1) the results of soil tests required by Parts II.A.4.b and III.A.3.g of this

permit, (2) credits for all nitrogen in the field that will be plant- available, (3) the amount of nitrogen and phosphorus in the manure, litter, and process wastewater to be applied, (4) consideration of multi-year phosphorus application (for any field where nutrients are applied at a rate based on the crop phosphorus requirement, the methodology must account for single-year nutrient applications that supply more than the crop's annual phosphorus requirement), (5) all other additions of plant available nitrogen and phosphorus to the field (i.e., from sources other than manure, litter, or process wastewater or credits for residual nitrogen), (6) timing and method of land application, and (7) volatilization of nitrogen and mineralization of organic nitrogen.

- Any other factors necessary to determine the amounts of nitrogen and phosphorus to be applied in accordance with the Narrative Rate Approach.

- NMPs using the Narrative Rate Approach must also include the following projections, which will not be used by the permitting authority in establishing site-specific permit terms:

- i. Planned crop rotations for each field for the period of permit coverage.

- ii. Projected amount of manure, litter, or process wastewater to be applied.

- iii. Projected credits for all nitrogen in the field that will be plant-available.

- iv. Consideration of multi-year phosphorus application.

- v. Accounting for other additions of plant-available nitrogen and phosphorus to the field.

- vi. The predicted form, source, and method of application of manure, litter, and process wastewater for each crop

- If the receiving water is on the 303(d) list for nutrients then the narrative rate approach must be used.

- a. For the Linear Approach the permittee will complete the Nutrient Budget Worksheet, below, for the next 5 years to which manure or process waste water is or may be applied. A copy of each Nutrient Budget Worksheet will be maintained on site, and a copy will be submitted to the Department.

Nutrient Budget Worksheet

Field identification: 200 Ac Pivot – E1/2

Year: 2015

Crop: Winter Wheat

Expected Crop Yield: 100 bu

Phosphorus index results or Phosphorus application from soil test: 9.0

Method of Application: Injected through pivot

When will application occur: June

Nutrient Budget			Nitrogen-based Application	Phosphorus-based Application	Source of information
1		Crop Nutrient Needs, lbs/acre	169		MSU Fertilizer Guide removal rates
2	(-)	Credits from previous legume crops, lbs/ac	0		
3	(-)	Residuals from past manure production lbs/acre	0		
4	(-)	Nutrients supplied by commercial fertilizer and Biosolids, lbs/acre	120		Commercial fertilizer
5	(-)	Nutrients supplied in irrigation water, lbs/acre	0		
6		= Additional Nutrients Needed, lbs/acre	49		
7		Total Nitrogen and Phosphorus in manure, lbs/ton or lbs/1000 gal (from manure test)	11.11#/1000 gals		Olsen's Ag Lab No.: 19428 Hog Separated Lagoon
8	(x)	Nutrient Availability factor, for Phosphorus based application use 1.0	$0.65 \times 0.75 = 0.49$		DEQ Circular 9, pages 27 & 28
9		= Available Nutrients in Manure, lbs/ton or lbs/1000 gal	5.4#/1000 gals		
10		Additional Nutrients needed, lbs/acre (calculated above)	49		
11	(/)	Available Nutrients in Manure, lbs/ton or lbs/1000 gal (calculated above)	5.4#/1000 gals		
12		= Manure Application Rate, tons/acre or 1000 gal/acre	9000 gals		

Comments:

Figuring 3 tons per acre straw produced. Nitrogen applied is based on annual soil tests.

Nutrient Budget Worksheet

Field identification: 200 Ac Pivot – W1/2

Year: 2015

Crop: Winter Wheat

Expected Crop Yield: 100 bu

Phosphorus index results or Phosphorus application from soil test: 8.5

Method of Application: Injected through pivot

When will application occur: June

Nutrient Budget			Nitrogen-based Application	Phosphorus-based Application	Source of information
1		Crop Nutrient Needs, lbs/acre	169		MSU Fertilizer Guide removal rates
2	(-)	Credits from previous legume crops, lbs/ac	0		
3	(-)	Residuals from past manure production lbs/acre	0		
4	(-)	Nutrients supplied by commercial fertilizer and Biosolids, lbs/acre	120		Commercial fertilizer
5	(-)	Nutrients supplied in irrigation water, lbs/acre	0		
6		= Additional Nutrients Needed, lbs/acre	49		
7		Total Nitrogen and Phosphorus in manure, lbs/ton or lbs/1000 gal (from manure test)	11.11#/1000 gals		Olsen's Ag Lab No.: 19428 Hog Separated Lagoon
8	(x)	Nutrient Availability factor, for Phosphorus based application use 1.0	0.65 x 0.75= 0.49		DEQ Circular 9, pages 27 & 28
9		= Available Nutrients in Manure, lbs/ton or lbs/1000 gal	5.4#/1000 gals		
10		Additional Nutrients needed, lbs/acre (calculated above)	49		
11	(/)	Available Nutrients in Manure, lbs/ton or lbs/1000 gal (calculated above)	5.4#/1000 gals		
12		= Manure Application Rate, tons/acre or 1000 gal/acre	9000 gals		

Comments:

Figuring 3 tons per acre straw produced. Nitrogen applied is based on annual soil tests.

Nutrient Budget Worksheet

Field identification: 140 Ac Pivot

Year: 2014

Crop: Winter Wheat

Expected Crop Yield: 100 bu

Phosphorus index results or Phosphorus application from soil test: 8.5

Method of Application: Injected through pivot

When will application occur: June

Nutrient Budget			Nitrogen-based Application	Phosphorus-based Application	Source of information
1		Crop Nutrient Needs, lbs/acre	169		MSU Fertilizer Guide removal rates
2	(-)	Credits from previous legume crops, lbs/ac	0		
3	(-)	Residuals from past manure production lbs/acre	0		
4	(-)	Nutrients supplied by commercial fertilizer and Biosolids, lbs/acre	120		Commercial fertilizer
5	(-)	Nutrients supplied in irrigation water, lbs/acre	0		
6		= Additional Nutrients Needed, lbs/acre	49		
7		Total Nitrogen and Phosphorus in manure, lbs/ton or lbs/1000 gal (from manure test)	11.11#/1000 gals		Olsen's Ag Lab No.: 19428 Hog Separated Lagoon
8	(x)	Nutrient Availability factor, for Phosphorus based application use 1.0	0.65 x 0.75= 0.49		DEQ Circular 9, pages 27 & 28
9		= Available Nutrients in Manure, lbs/ton or lbs/1000 gal	5.4#/1000 gals		
10		Additional Nutrients needed, lbs/acre (calculated above)	49		
11	(/)	Available Nutrients in Manure, lbs/ton or lbs/1000 gal (calculated above)	5.4#/1000 gals		
12		= Manure Application Rate, tons/acre or 1000 gal/acre	9000 gals		

Comments:

Figuring 3 tons per acre straw produced. Nitrogen applied is based on annual soil tests.

Nutrient Budget Worksheet

Field identification: South Sam

Year: 2015

Crop: Winter Wheat

Expected Crop Yield: 35 bu

Phosphorus index results or Phosphorus application from soil test: 11.5

Method of Application: Broadcast and incorporated with hoe drills.

When will application occur: Early fall.

Nutrient Budget			Nitrogen-based Application	Phosphorus-based Application	Source of information
1		Crop Nutrient Needs, lbs/acre	65		MSU Fertilizer Guide removal rates
2	(-)	Credits from previous legume crops, lbs/ac	0		
3	(-)	Residuals from past manure production lbs/acre	0		
4	(-)	Nutrients supplied by commercial fertilizer and Biosolids, lbs/acre	0		
5	(-)	Nutrients supplied in irrigation water, lbs/acre	0		
6		= Additional Nutrients Needed, lbs/acre	65		
7		Total Nitrogen and Phosphorus in manure, lbs/ton or lbs/1000 gal (from manure test)	54#/1000 gals		Olsen's Ag Lab No.: 19426 & 19427 Hog Solid Lagoon & Chicken Liquid
8	(x)	Nutrient Availability factor, for Phosphorus based application use 1.0	$0.65 \times 0.50 = 0.325$		DEQ Circular 9, pages 27 & 28
9		= Available Nutrients in Manure, lbs/ton or lbs/1000 gal	17.5#/1000 gals		
10		Additional Nutrients needed, lbs/acre (calculated above)	65		
11	(/)	Available Nutrients in Manure, lbs/ton or lbs/1000 gal (calculated above)	17.5#/1000 gals		
12		= Manure Application Rate, tons/acre or 1000 gal/acre	3700 gals		

Comments:

Figuring 1.5 tons per acre straw produced.

Nutrient Budget Worksheet

Field identification: North State

Year: 2015

Crop: Barley

Expected Crop Yield: 50 bu

Phosphorus index results or Phosphorus application from soil test: 12.0

Method of Application: Broadcast and incorporated with hoe drills.

When will application occur: Early fall.

Nutrient Budget			Nitrogen-based Application	Phosphorus-based Application	Source of information
1		Crop Nutrient Needs, lbs/acre	65		MSU Fertilizer Guide removal rates
2	(-)	Credits from previous legume crops, lbs/ac	0		
3	(-)	Residuals from past manure production lbs/acre	0		
4	(-)	Nutrients supplied by commercial fertilizer and Biosolids, lbs/acre	0		
5	(-)	Nutrients supplied in irrigation water, lbs/acre	0		
6		= Additional Nutrients Needed, lbs/acre	65		
7		Total Nitrogen and Phosphorus in manure, lbs/ton or lbs/1000 gal (from manure test)	54#/1000 gals		Olsen's Ag Lab No.: 19426 & 19427 Hog Solid Lagoon & Chicken Liquid
8	(x)	Nutrient Availability factor, for Phosphorus based application use 1.0	0.65 x 0.50= 0.325		DEQ Circular 9, pages 27 & 28
9		= Available Nutrients in Manure, lbs/ton or lbs/1000 gal	17.5#/1000 gals		
10		Additional Nutrients needed, lbs/acre (calculated above)	65		
11	(/)	Available Nutrients in Manure, lbs/ton or lbs/1000 gal (calculated above)	17.5#/1000 gals		
12		= Manure Application Rate, tons/acre or 1000 gal/acre	3700 gals		

Comments:

Figuring 1.5 tons per acre straw produced.

Nutrient Budget Worksheet

Field identification: Haymaker

Year: 2014

Crop: Barley

Expected Crop Yield: 50 bu

Phosphorus index results or Phosphorus application from soil test: 11.5

Method of Application: Broadcast and incorporated with hoe drills.

When will application occur: Early fall.

Nutrient Budget

			Nitrogen-based Application	Phosphorus-based Application	Source of information
1		Crop Nutrient Needs, lbs/acre	65		MSU Fertilizer Guide removal rates
2	(-)	Credits from previous legume crops, lbs/ac	0		
3	(-)	Residuals from past manure production lbs/acre	0		
4	(-)	Nutrients supplied by commercial fertilizer and Biosolids, lbs/acre	0		
5	(-)	Nutrients supplied in irrigation water, lbs/acre	0		
6		= Additional Nutrients Needed, lbs/acre	65		
7		Total Nitrogen and Phosphorus in manure, lbs/ton or lbs/1000 gal (from manure test)	54#/1000 gals		Olsen's Ag Lab No.: 19426 & 19427 Hog Solid Lagoon & Chicken Liquid
8	(x)	Nutrient Availability factor, for Phosphorus based application use 1.0	$0.65 \times 0.50 = 0.325$		DEQ Circular 9, pages 27 & 28
9		= Available Nutrients in Manure, lbs/ton or lbs/1000 gal	17.5#/1000 gals		
10		Additional Nutrients needed, lbs/acre (calculated above)	65		
11	(/)	Available Nutrients in Manure, lbs/ton or lbs/1000 gal (calculated above)	17.5#/1000 gals		
12		= Manure Application Rate, tons/acre or 1000 gal/acre	3700 gals		

Comments:

Figuring 1.5 tons per acre straw produced.

Nutrient Budget Worksheet

Field identification: Rimrock		Year: 2014	Crop: Winter Wheat		
Expected Crop Yield: 35 bu					
Phosphorus index results or Phosphorus application from soil test: 12.0					
Method of Application: Broadcast and incorporated with hoe drills.					
When will application occur: Early fall.					
Nutrient Budget			Nitrogen-based Application	Phosphorus-based Application	Source of information
1		Crop Nutrient Needs, lbs/acre	65		MSU Fertilizer Guide removal rates
2	(-)	Credits from previous legume crops, lbs/ac	0		
3	(-)	Residuals from past manure production lbs/acre	0		
4	(-)	Nutrients supplied by commercial fertilizer and Biosolids, lbs/acre	0		
5	(-)	Nutrients supplied in irrigation water, lbs/acre	0		
6		= Additional Nutrients Needed, lbs/acre	65		
7		Total Nitrogen and Phosphorus in manure, lbs/ton or lbs/1000 gal (from manure test)	54#/1000 gals		Olsen's Ag Lab No.: 19426 & 19427 Hog Solid Lagoon & Chicken Liquid
8	(x)	Nutrient Availability factor, for Phosphorus based application use 1.0	$0.65 \times 0.50 = 0.325$		DEQ Circular 9, pages 27 & 28
9		= Available Nutrients in Manure, lbs/ton or lbs/1000 gal	17.5#/1000 gals		
10		Additional Nutrients needed, lbs/acre (calculated above)	65		
11	(/)	Available Nutrients in Manure, lbs/ton or lbs/1000 gal (calculated above)	17.5#/1000 gals		
12		= Manure Application Rate, tons/acre or 1000 gal/acre	3700 gals		

Comments:

Figuring 1.5 tons per acre straw produced.

Nutrient Budget Worksheet

Field identification: Buffalo Jump - East		Year: 2014	Crop: Winter Wheat	
Expected Crop Yield: 35 bu				
Phosphorus index results or Phosphorus application from soil test: 11.5				
Method of Application: Broadcast and incorporated with hoe drills.				
When will application occur: Early fall.				
Nutrient Budget		Nitrogen-based Application	Phosphorus-based Application	Source of information
1	Crop Nutrient Needs, lbs/acre	65		MSU Fertilizer Guide removal rates
2	(-) Credits from previous legume crops, lbs/ac	0		
3	(-) Residuals from past manure production lbs/acre	0		
4	(-) Nutrients supplied by commercial fertilizer and Biosolids, lbs/acre	0		
5	(-) Nutrients supplied in irrigation water, lbs/acre	0		
6	= Additional Nutrients Needed, lbs/acre	65		
7	Total Nitrogen and Phosphorus in manure, lbs/ton or lbs/1000 gal (from manure test)	32#/T		Olsen's Ag Lab No.: 20331 Sheep & Dairy Manure
8	(x) Nutrient Availability factor, for Phosphorus based application use 1.0	0.60 x 0.50= 0.30		DEQ Circular 9, pages 27 & 28
9	= Available Nutrients in Manure, lbs/ton or lbs/1000 gal	9.6#/T		
10	Additional Nutrients needed, lbs/acre (calculated above)	65		
11	(/) Available Nutrients in Manure, lbs/ton or lbs/1000 gal (calculated above)	9.6#/T		
12	= Manure Application Rate, tons/acre or 1000 gal/acre	6.8 T/Ac		

Comments:

Figuring 1.5 tons per acre straw produced.

Nutrient Budget Worksheet

Field identification: <u>Buffalo Jump</u>			Year: 2014	Crop: Winter Wheat	
Expected Crop Yield: 35 bu					
Phosphorus index results or Phosphorus application from soil test: 11.5					
Method of Application: Broadcast and incorporated with hoe drills.					
When will application occur: Early fall.					
Nutrient Budget			Nitrogen-based Application	Phosphorus-based Application	Source of information
1		Crop Nutrient Needs, lbs/acre	65		MSU Fertilizer Guide removal rates
2	(-)	Credits from previous legume crops, lbs/ac	0		
3	(-)	Residuals from past manure production lbs/acre	0		
4	(-)	Nutrients supplied by commercial fertilizer and Biosolids, lbs/acre	0		
5	(-)	Nutrients supplied in irrigation water, lbs/acre	0		
6		= Additional Nutrients Needed, lbs/acre	65		
7		Total Nitrogen and Phosphorus in manure, lbs/ton or lbs/1000 gal (from manure test)	32#/T		Olsen's Ag Lab No.: 20331 Sheep & Dairy Manure
8	(x)	Nutrient Availability factor, for Phosphorus based application use 1.0	$0.60 \times 0.50 =$ 0.30		DEQ Circular 9, pages 27 & 28
9		= Available Nutrients in Manure, lbs/ton or lbs/1000 gal	9.6#/T		
10		Additional Nutrients needed, lbs/acre (calculated above)	65		
11	(/)	Available Nutrients in Manure, lbs/ton or lbs/1000 gal (calculated above)	9.6#/T		
12		= Manure Application Rate, tons/acre or 1000 gal/acre	6.8 T/Ac		

Comments:

Figuring 1.5 tons per acre straw produced.

Nutrient Budget Worksheet

Field identification: New Break - South

Year: 2014

Crop: Barley

Expected Crop Yield: 50 bu

Phosphorus index results or Phosphorus application from soil test: 11.5

Method of Application: Broadcast and incorporated with hoe drills.

When will application occur: Early fall.

Nutrient Budget			Nitrogen-based Application	Phosphorus-based Application	Source of information
1		Crop Nutrient Needs, lbs/acre	65		MSU Fertilizer Guide removal rates
2	(-)	Credits from previous legume crops, lbs/ac	0		
3	(-)	Residuals from past manure production lbs/acre	0		
4	(-)	Nutrients supplied by commercial fertilizer and Biosolids, lbs/acre	0		
5	(-)	Nutrients supplied in irrigation water, lbs/acre	0		
6		= Additional Nutrients Needed, lbs/acre	65		
7		Total Nitrogen and Phosphorus in manure, lbs/ton or lbs/1000 gal (from manure test)	32#/T		Olsen's Ag Lab No.: 20331 Sheep & Dairy Manure
8	(x)	Nutrient Availability factor, for Phosphorus based application use 1.0	$0.60 \times 0.50 = 0.30$		DEQ Circular 9, pages 27 & 28
9		= Available Nutrients in Manure, lbs/ton or lbs/1000 gal	9.6#/T		
10		Additional Nutrients needed, lbs/acre (calculated above)	65		
11	(/)	Available Nutrients in Manure, lbs/ton or lbs/1000 gal (calculated above)	9.6#/T		
12		= Manure Application Rate, tons/acre or 1000 gal/acre	6.8 T/Ac		

Comments:

Figuring 1.5 tons per acre straw produced.

Appendix A: Phosphorus Index Worksheet (Complete for each field and crop)

Field: 200 Ac Pivot - E1/2								
Crop: Barley								
Year: 2014								
Field Category Factor	None (0)	Low (1)	Medium (2)	High (4)	Very High (8)	Risk Value (0,1,2,4,8)	Weight Factor	Weight Risk
Soil Erosion	NA	<5 tons/as/yr	5-10 ton/ac/yr	10-15 tons/ac/yr	QA>10 for erodible soils	1	X 1.5	1.5
Furrow Irrigation Erosion	N/A	Tail water recovery, QS>6 very erodible soils, or QS>10 other soils	QS> for erosion resistant soil	QS> for erodible soils	QA>6 for very erodible soils	n/a	X 1.5	0.0
Sprinkler Irrigation Erosion	All fields 0-3% slope, all sandy fields or field evaluation indicates little or no runoff large spray on silts 3-8%	Medium spray on silty soils 3-15% slopes, large spray on silty soils 8-15% slope, low spray on silt soils 3-8% large spray on clay soil 3-15% slope	Medium spray on clay soils 3-8% slopes, large spray on clay soils >15% slope, medium spray on silt soil >15% slope	Medium spray on clay soils >8% slope, low spray on clay soil 3-8% slope, low spray on silty soils >15% slopes	Low spray on clay soils >8% slopes	0	X 1.5	0.0
Runoff Class	Negligible	Very Low or Low	Medium	High	Very High	1	X 0.5	0.5
Olson Soil Test P	-----	<20 ppm	20-40 ppm	40-80 ppm	>80 ppm	2	X 0.5	1.0
Commercial P Fertilizer Application Method	None Applied	Placed with Planter or injection deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop emerges	Surface applied to pasture or >3 months before crop emerges	1	X 1.0	1.0
Commercial P Fertilizer Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205	1	X 1.0	1.0
Organic P Source Application Method	None Applied	Injected deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop.	Surface applied to pasture or >3 months before crop emerges	2	X 1.0	2.0
Organic P Source Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205	1	X 1.0	1.0
Distance to Concentrated Surface Water Flow	>1,000 feet	200-1,000 feet, or functioning grass waterways in concentrated surface water	100-200 feet	<100 feet	0 feet or application are directly into concentrated surface water flow areas.	1	X 1.0	1.0
Total Phosphorus Index Value: 9.0 (Low)								

Field: 200 Ac Pivot -- W1/2.

Total Phosphorus Index Value: 8.5 (Low)

Appendix A: Phosphorus Index Worksheet (Complete for each field and crop)

Field: 140 Ac Pivot								
Crop: Winter Wheat						Year: 2014		
Field Category Factor	None (0)	Low (1)	Medium (2)	High (4)	Very High (8)	Risk Value (0,1,2,4,8)	Weight Factor	Weight Risk
Soil Erosion	NA	<5 tons/as/yr	5-10 ton/ac/yr	10-15 tons/ac/yr	QA> 10 for erodible soils	1	X 1.5	1.5
Furrow Irrigation Erosion	N/A	Tail water recovery, QS>6 very erodible soils, or QS>10 other soils	QS> for erosion resistant soil	QS> for erodible soils	QA>6 for very erodible soils	n/a	X 1.5	0.0
Sprinkler Irrigation Erosion	All fields 0-3% slope, all sandy fields or field evaluation indicates little or no runoff large spray on silts 3-8%	Medium spray on silty soils 3-15% slopes, large spray on silty soils 8-15% slope, low spray on silt soils 3-8% large spray on clay soil 3-15% slope	Medium spray on clay soils 3-8% slopes, large spray on clay soils >15% slope, medium spray on silt soil >15% slope	Medium spray on clay soils >8% slope, low spray on clay soil 3-8% slope, low spray on silty soils >15% slopes	Low spray on clay soils >8% slopes	0	X 1.5	0.0
Runoff Class	Negligible	Very Low or Low	Medium	High	Very High	1	X 0.5	0.5
Olson Soil Test P	-----	<20 ppm	20-40 ppm	40-80 ppm	>80 ppm	1	X 0.5	0.5
Commercial P Fertilizer Application Method	None Applied	Placed with Planter or injection deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop emerges	Surface applied to pasture or >3 months before crop emerges	1	X 1.0	1.0
Commercial P Fertilizer Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205	1	X 1.0	1.0
Organic P Source Application Method	None Applied	Injected deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop.	Surface applied to pasture or >3 months before crop emerges	2	X 1.0	2.0
Organic P Source Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205	1	X 1.0	1.0
Distance to Concentrated Surface Water Flow	>1,000 feet	200-1,000 feet, or functioning grass waterways in concentrated surface water	100-200 feet	<100 feet	0 feet or application are directly into concentrated surface water flow areas.	1	X 1.0	1.0

Total Phosphorus Index Value: 8.5 (Low)

Appendix A: Phosphorus Index Worksheet (Complete for each field and crop)

Field: South Sam		Crop: Winter Wheat				Year: 2015		
Field Category Factor	None (0)	Low (1)	Medium (2)	High (4)	Very High (8)	Risk Value (0,1,2,4,8)	Weight Factor	Weight Risk
Soil Erosion	NA	<5 tons/as/yr	5-10 ton/ac/yr	10-15 tons/ac/yr	QA> 10 for erodible soils	1	X 1.5	1.5
Furrow Irrigation Erosion	N/A	Tail water recovery, QS>6 very erodible soils, or QS>10 other soils	QS> for erosion resistant soil	QS> for erodible soils	QA>6 for very erodible soils	n/a	X 1.5	0.0
Sprinkler Irrigation Erosion	All fields 0-3% slope, all sandy fields or field evaluation indicates little or no runoff large spray on silts 3-8%	Medium spray on silty soils 3-15% slopes, large spray on silty soils 8-15% slope, low spray on silt soils 3-8% large spray on clay soil 3-15% slope	Medium spray on clay soils 3-8% slopes, large spray on clay soils >15% slope, medium spray on silt soil >15% slope	Medium spray on clay soils >8% slope, low spray on clay soil 3-8% slope, low spray on silty soils >15% slopes	Low spray on clay soils >8% slopes	n/a	X 1.5	0.0
Runoff Class	Negligible	Very Low or Low	Medium	High	Very High	1	X 0.5	0.5
Olson Soil Test P	-----	<20 ppm	20-40 ppm	40-80 ppm	>80 ppm	1	X 0.5	0.5
Commercial P Fertilizer Application Method	None Applied	Placed with Planter or injection deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop emerges	Surface applied to pasture or >3 months before crop emerges	1	X 1.0	1.0
Commercial P Fertilizer Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205	1	X 1.0	1.0
Organic P Source Application Method	None Applied	Injected deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop.	Surface applied to pasture or >3 months before crop emerges	2	X 1.0	2.0
Organic P Source Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205	4	X 1.0	4.0
Distance to Concentrated Surface Water Flow	>1,000 feet	200-1,000 feet, or functioning grass waterways in concentrated surface water	100-200 feet	<100 feet	0 feet or application are directly into concentrated surface water flow areas.	1	X 1.0	1.0
Total Phosphorus Index Value: 11.5 (Medium)								

Appendix A: Phosphorus Index Worksheet (Complete for each field and crop)

Field: North State								
Field Category Factor	None (0)	Low (1)	Crop: Barley			Year: 2015		
			Medium (2)	High (4)	Very High (8)	Risk Value (0,1,2,4,8)	Weight Factor	Weight Risk
Soil Erosion	NA	<5 tons/as/yr	5-10 ton/ac/yr	10-15 tons/ac/yr	QA> 10 for erodible soils	1	X 1.5	1.5
Furrow Irrigation Erosion	N/A	Tail water recovery, QS>6 very erodible soils, or QS>10 other soils	QS> for erosion resistant soil	QS> for erodible soils	QA>6 for very erodible soils	n/a	X 1.5	0.0
Sprinkler Irrigation Erosion	All fields 0-3% slope, all sandy fields or field evaluation indicates little or no runoff large spray on silts 3-8%	Medium spray on silty soils 3-15% slopes, large spray on silty soils 8-15% slope, low spray on silt soils 3-8% large spray on clay soil 3-15% slope	Medium spray on clay soils 3-8% slopes, large spray on clay soils >15% slope, medium spray on silt soil >15% slope	Medium spray on clay soils >8% slope, low spray on clay soil 3-8% slope, low spray on silty soils >15% slopes	Low spray on clay soils >8% slopes	n/a	X 1.5	0.0
Runoff Class	Negligible	Very Low or Low	Medium	High	Very High	1	X 0.5	0.5
Olson Soil Test P	-----	<20 ppm	20-40 ppm	40-80 ppm	>80 ppm	2	X 0.5	1.0
Commercial P Fertilizer Application Method	None Applied	Placed with Planter or injection deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop emerges	Surface applied to pasture or >3 months before crop emerges	1	X 1.0	1.0
Commercial P Fertilizer Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205	1	X 1.0	1.0
Organic P Source Application Method	None Applied	Injected deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop.	Surface applied to pasture or >3 months before crop emerges	2	X 1.0	2.0
Organic P Source Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205	4	X 1.0	4.0
Distance to Concentrated Surface Water Flow	>1,000 feet	200-1,000 feet, or functioning grass waterways in concentrated surface water	100-200 feet	<100 feet	0 feet or application are directly into concentrated surface water flow areas.	1	X 1.0	1.0
Total Phosphorus Index Value: 12.0 (Medium)								

Appendix A: Phosphorus Index Worksheet (Complete for each field and crop)

Field Category Factor		None (0)	Low (1)	Medium (2)	High (4)	Very High (8)	Risk Value (0,1,2,4,8)	Weight Factor	Weight Risk
Soil Erosion	NA	<5 tons/as/yr	5-10 ton/ac/yr	10-15 tons/ac/yr	QA> 10 for erodible soils	1	X 1.5	1.5	
Furrow Irrigation Erosion	N/A	Tail water recovery, QS>6 very erodible soils, or QS>10 other soils	QS> for erosion resistant soil	QS> for erodible soils	QA>6 for very erodible soils	n/a	X 1.5	0.0	
Sprinkler Irrigation Erosion	All fields 0-3% slope, all sandy fields or field evaluation indicates little or no runoff large spray on silts 3-8%	Medium spray on silty soils 3-15% slopes, large spray on silty soils 8-15% slope, low spray on silt soils 3-8% large spray on clay soil 3-15% slope	Medium spray on clay soils 3-8% slopes, large spray on clay soils >15% slope, medium spray on silt soil >15% slope	Medium spray on clay soils >8% slope, low spray on clay soil 3-8% slope, low spray on silty soils >15% slopes	Low spray on clay soils >8% slopes	n/a	X 1.5	0.0	
Runoff Class	Negligible	Very Low or Low	Medium	High	Very High	1	X 0.5	0.5	
Olson Soil Test P	-----	<20 ppm	20-40 ppm	40-80 ppm	>80 ppm	2	X 0.5	1.0	
Commercial P Fertilizer Application Method	None Applied	Placed with Planter or injection deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop emerges	Surface applied to pasture or >3 months before crop emerges	1	X 1.0	1.0	
Commercial P Fertilizer Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205	1	X 1.0	1.0	
Organic P Source Application Method	None Applied	Injected deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop.	Surface applied to pasture or >3 months before crop emerges	2	X 1.0	2.0	
Organic P Source Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205	4	X 1.0	4.0	
Distance to Concentrated Surface Water Flow	>1,000 feet	200-1,000 feet, or functioning grass waterways in concentrated surface water	100-200 feet	<100 feet	0 feet or application are directly into concentrated surface water flow areas.	1	X 1.0	1.0	
Total Phosphorus Index Value: 12.0 (Medium)									

Appendix A: Phosphorus Index Worksheet (Complete for each field and crop)

Field: Buffalo Jump - East								
Crop: Winter Wheat								
Year: 2014								
Field Category Factor	None (0)	Low (1)	Medium (2)	High (4)	Very High (8)	Risk Value (0,1,2,4,8)	Weight Factor	Weight Risk
Soil Erosion	NA	<5 tons/as/yr	5-10 ton/ac/yr	10-15 tons/ac/yr	QA> 10 for erodible soils	1	X 1.5	1.5
Furrow Irrigation Erosion	N/A	Tail water recovery, QS>6 very erodible soils, or QS>10 other soils	QS> for erosion resistant soil	QS> for erodible soils	QA>6 for very erodible soils	n/a	X 1.5	0.0
Sprinkler Irrigation Erosion	All fields 0-3% slope, all sandy fields or field evaluation indicates little or no runoff large spray on silts 3-8%	Medium spray on silty soils 3-15% slopes, large spray on silty soils 8-15% slope, low spray on silt soils 3-8% large spray on clay soil 3-15% slope	Medium spray on clay soils 3-8% slopes, large spray on clay soils >15% slope, medium spray on silt soil >15% slope	Medium spray on clay soils >8% slope, low spray on clay soil 3-8% slope, low spray on silty soils >15% slopes	Low spray on clay soils >8% slopes	n/a	X 1.5	0.0
Runoff Class	Negligible	Very Low or Low	Medium	High	Very High	1	X 0.5	0.5
Olson Soil Test P	-----	<20 ppm	20-40 ppm	40-80 ppm	>80 ppm	1	X 0.5	0.5
Commercial P Fertilizer Application Method	None Applied	Placed with Planter or injection deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop emerges	Surface applied to pasture or >3 months before crop emerges	1	X 1.0	1.0
Commercial P Fertilizer Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205	1	X 1.0	1.0
Organic P Source Application Method	None Applied	Injected deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop.	Surface applied to pasture or >3 months before crop emerges	2	X 1.0	2.0
Organic P Source Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205	4	X 1.0	4.0
Distance to Concentrated Surface Water Flow	>1,000 feet	200-1,000 feet, or functioning grass waterways in concentrated surface water	100-200 feet	<100 feet	0 feet or application are directly into concentrated surface water flow areas.	1	X 1.0	1.0
Total Phosphorus Index Value: 11.5 (Medium)								

Appendix A: Phosphorus Index Worksheet (Complete for each field and crop)

Field: Buffalo Jump								
Crop: Winter Wheat						Year: 2014		
Field Category Factor	None (0)	Low (1)	Medium (2)	High (4)	Very High (8)	Risk Value (0,1,2,4,8)	Weight Factor	Weight Risk
Soil Erosion	NA	<5 tons/as/yr	5-10 ton/ac/yr	10-15 tons/ac/yr	QA> 10 for erodible soils	1	X 1.5	1.5
Furrow Irrigation Erosion	N/A	Tail water recovery, QS>6 very erodible soils, or QS>10 other soils	QS> for erosion resistant soil	QS> for erodible soils	QA>6 for very erodible soils	n/a	X 1.5	0.0
Sprinkler Irrigation Erosion	All fields 0-3% slope, all sandy fields or field evaluation indicates little or no runoff large spray on silts 3-8%	Medium spray on silty soils 3-15% slopes, large spray on silty soils 8-15% slope, low spray on silt soils 3-8%	Medium spray on clay soils 3-8% slopes, large spray on clay soils >15% slope, medium spray on silt soil >15% slope	Medium spray on clay soils >8% slope, low spray on clay soil 3-8% slope, low spray on silty soils >15% slopes	Low spray on clay soils >8% slopes	n/a	X 1.5	0.0
		large spray on clay soil 3-15% slope						
Runoff Class	Negligible	Very Low or Low	Medium	High	Very High	1	X 0.5	0.5
Olson Soil Test P	-----	<20 ppm	20-40 ppm	40-80 ppm	>80 ppm	1	X 0.5	0.5
Commercial P Fertilizer Application Method	None Applied	Placed with Planter or injection deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop emerges	Surface applied to pasture or >3 months before crop emerges	1	X 1.0	1.0
Commercial P Fertilizer Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205	1	X 1.0	1.0
Organic P Source Application Method	None Applied	Injected deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop.	Surface applied to pasture or >3 months before crop emerges	2	X 1.0	2.0
Organic P Source Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205	4	X 1.0	4.0
Distance to Concentrated Surface Water Flow	>1,000 feet	200-1,000 feet, or functioning grass waterways in concentrated surface water	100-200 feet	<100 feet	0 feet or application are directly into concentrated surface water flow areas.	1	X 1.0	1.0

Total Phosphorus Index Value: 11.5 (Medium)

Appendix A: Phosphorus Index Worksheet (Complete for each field and crop)

Field: New Break - South		Crop: Barley				Year: 2014		
Field Category Factor	None (0)	Low (1)	Medium (2)	High (4)	Very High (8)	Risk Value (0,1,2,4,8)	Weight Factor	Weight Risk
Soil Erosion	NA	<5 tons/as/yr	5-10 ton/ac/yr	10-15 tons/ac/yr	QA> 10 for erodible soils	1	X 1.5	1.5
Furrow Irrigation Erosion	N/A	Tail water recovery, QS>6 very erodible soils, or QS>10 other soils	QS> for erosion resistant soil	QS> for erodible soils	QA>6 for very erodible soils	n/a	X 1.5	0.0
Sprinkler Irrigation Erosion	All fields 0-3% slope, all sandy fields or field evaluation indicates little or no runoff large spray on silts 3-8%	Medium spray on silty soils 3-15% slopes, large spray on silty soils 8-15% slope, low spray on silt soils 3-8% large spray on clay soil 3-15% slope	Medium spray on clay soils 3-8% slopes, large spray on clay soils >15% slope, medium spray on silt soil >15% slope	Medium spray on clay soils >8% slope, low spray on clay soil 3-8% slope, low spray on silty soils >15% slopes	Low spray on clay soils >8% slopes	n/a	X 1.5	0.0
Runoff Class	Negligible	Very Low or Low	Medium	High	Very High	1	X 0.5	0.5
Olson Soil Test P	-----	<20 ppm	20-40 ppm	40-80 ppm	>80 ppm	1	X 0.5	0.5
Commercial P Fertilizer Application Method	None Applied	Placed with Planter or injection deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop emerges	Surface applied to pasture or >3 months before crop emerges	1	X 1.0	1.0
Commercial P Fertilizer Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205	1	X 1.0	1.0
Organic P Source Application Method	None Applied	Injected deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop.	Surface applied to pasture or >3 months before crop emerges	2	X 1.0	2.0
Organic P Source Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205	4	X 1.0	4.0
Distance to Concentrated Surface Water Flow	>1,000 feet	200-1,000 feet, or functioning grass waterways in concentrated surface water	100-200 feet	<100 feet	0 feet or application are directly into concentrated surface water flow areas.	1	X 1.0	1.0
Total Phosphorus Index Value: 11.5 (Medium)								

Section F - CERTIFICATION

Permittee Information: This form must be completed, signed, and certified as follows:

- For a corporation, by a principal officer of at least the level of vice president;
- For a partnership or sole proprietorship, by a general partner or the proprietor, respectively; or
- For a municipality, state, federal, or other public facility, by either a principal executive officer or ranking elected official.

All Permittees Must Complete the Following Certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information; including the possibility of fine and imprisonment for knowing violations. [75-5-633, MCA]

A. Name (Type or Print)

Abe Waldner

B. Title (Type or Print)

Farm Boss

C. Phone No.

406-632-4717, x205

D. Signature

Abe Waldner

E. Date Signed

31/10/2013

The Department will not process this form until all of the requested information is supplied, and the appropriate fees are paid. Return this form and the applicable fee to:

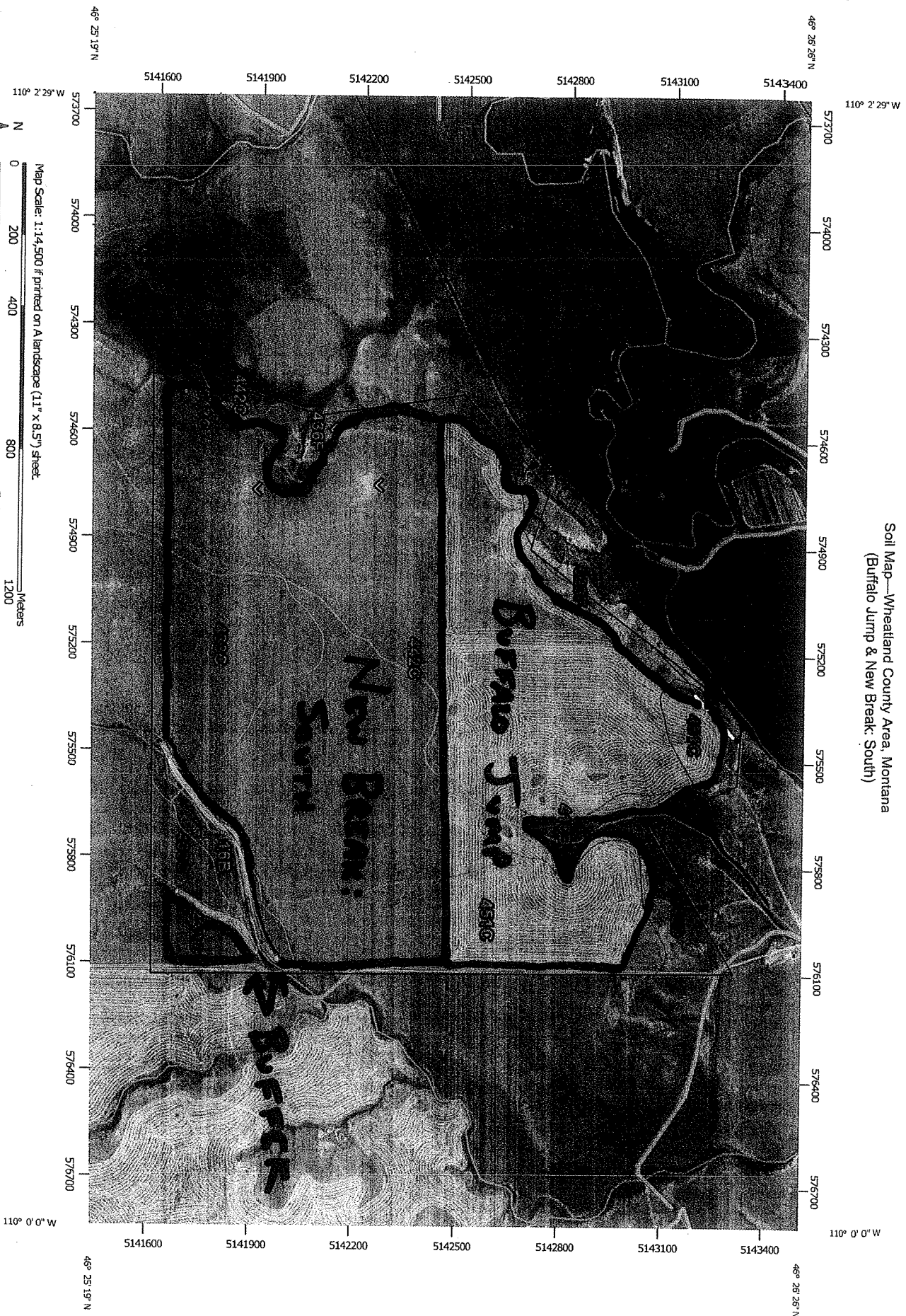
Department of Environmental Quality
Water Protection Bureau
PO Box 200901
Helena, MT 59620-0901
(406) 444-3080

RECEIVED

NOV 04 2013

DEQ/WTP
PERMITTING & COMPLIANCE DIV.

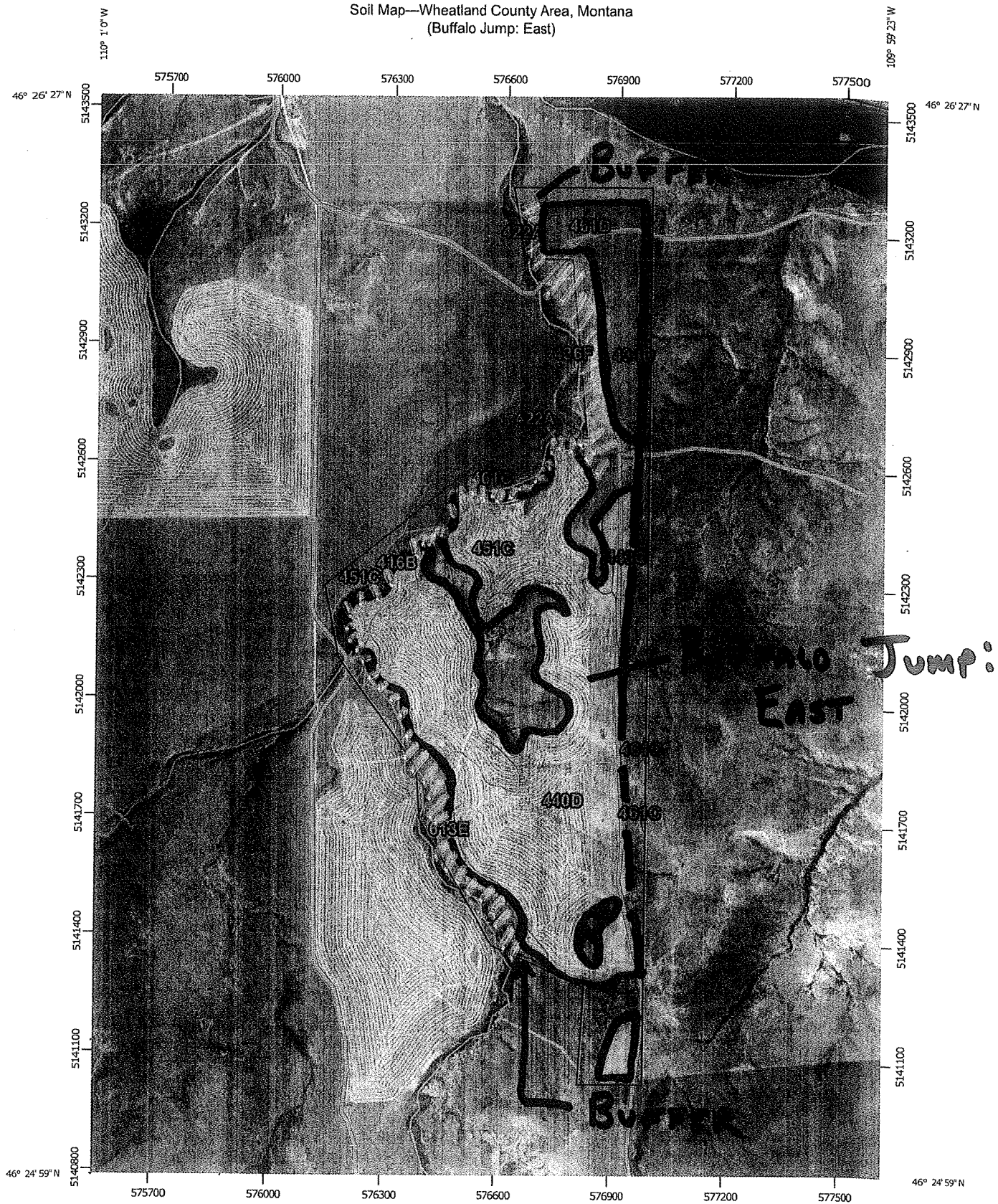
Soil Map—Wheatland County Area, Montana
(Buffalo Jump & New Break: South)



Map Unit Legend

Wheatland County Area, Montana (MT624)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
416B	Fairway-Korchea loams, 0 to 4 percent slopes, rarely flooded	35.4	6.2%
433C	Boxwell-Rentsac complex, 2 to 8 percent slopes	63.9	11.2%
436F	Cabbart-Rentsac complex, 15 to 60 percent slopes	11.2	2.0%
442C	Rhame-Rentsac complex, 2 to 8 percent slopes	335.5	58.9%
442D	Rhame-Rentsac complex, 8 to 15 percent slopes	12.4	2.2%
451C	Chinook gravelly fine sandy loam, 2 to 8 percent slopes	87.5	15.4%
629F	Cabba-Rock outcrop complex, 15 to 60 percent slopes	9.4	1.6%
643C	Shambo loam, 4 to 8 percent slopes	14.5	2.5%
Totals for Area of Interest		569.8	100.0%

Soil Map—Wheatland County Area, Montana
(Buffalo Jump: East)



Map Scale: 1:13,300 if printed on A portrait (8.5" x 11") sheet.

0 150 300 600 900 Meters

0 500 1000 2000 3000 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 12N WGS84



Natural Resources
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Web Soil Survey
National Cooperative Soil Survey

11/25/2013
Page 1 of 3

Map Unit Legend

Wheatland County Area, Montana (MT624)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
416B	Fairway-Korchea loams, 0 to 4 percent slopes, rarely flooded	13.4	5.2%
422A	Havre loam, 0 to 2 percent slopes, rarely flooded	0.9	0.4%
434D	Cabbart loam, 2 to 15 percent slopes, fan	7.6	2.9%
436F	Cabbart-Rentsac complex, 15 to 60 percent slopes	13.8	5.3%
440D	Rentsac-Tanna complex, 8 to 15 percent slopes	110.5	42.7%
443C	Ethridge-Rentsac complex, 2 to 8 percent slopes	11.5	4.4%
451C	Chinook gravelly fine sandy loam, 2 to 8 percent slopes	57.7	22.3%
461C	Varney gravelly loam, 4 to 8 percent slopes	11.8	4.6%
461D	Varney gravelly loam, 8 to 15 percent slopes	16.6	6.4%
613E	Cabba-Haverlon complex, 0 to 25 percent slopes	15.3	5.9%
Totals for Area of Interest		258.9	100.0%



Soil Map—Wheatland County Area, Montana
(North State & South Sam)

Butler

*To:
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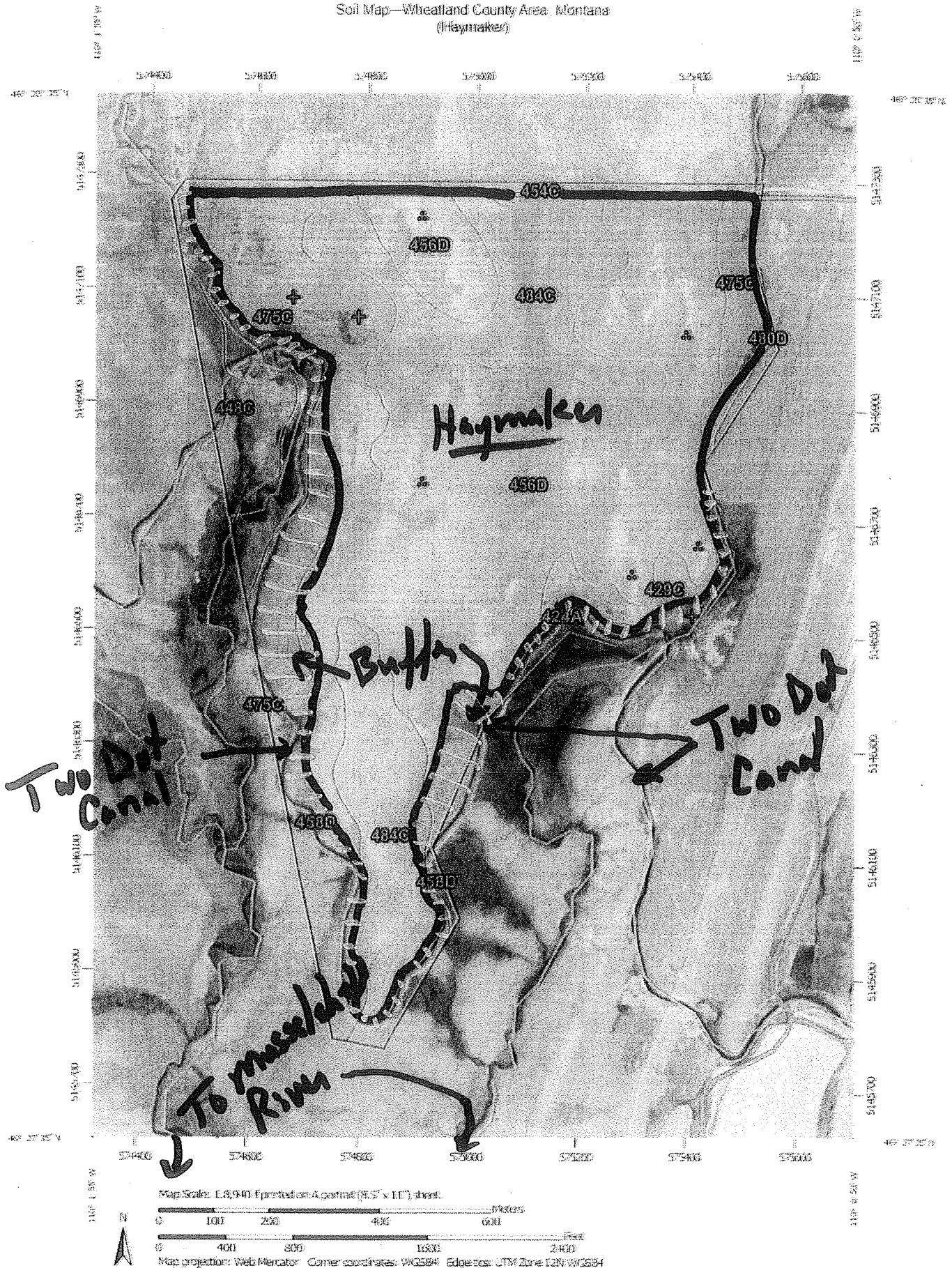
Map Scale: 1:15,200 if printed on A landscape (11" x 8.5") sheet.

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 12N WGS84

Map Unit Legend

Wheatland County Area, Montana (MT624)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
453D	Cabbart-Rentsac complex, 2 to 15 percent slopes	1.1	0.1%
454C	Delpoint-Yamacall complex, 2 to 8 percent slopes	192.1	23.9%
455D	Cabbart-Crago-Delpoint complex, 4 to 15 percent slopes, fan	27.5	3.4%
456D	Cabbart-Delpoint loams, 4 to 15 percent slopes	89.8	11.2%
458D	Delpoint-Cabbart-Yamacall complex, 4 to 15 percent slopes	124.8	15.6%
467B	Sieben-Truchot complex, 0 to 4 percent slopes	30.6	3.8%
471C	Kobase silty clay loam, 0 to 4 percent slopes	22.0	2.7%
475C	Zatoville-Kobar complex, 2 to 8 percent slopes	32.7	4.1%
480D	Yawdim-Abor complex, 4 to 15 percent slopes	16.4	2.0%
481D	Megonot-Yawdim complex, 4 to 15 percent slopes, fan	73.0	9.1%
482D	Abor-Crago complex, 2 to 15 percent slopes	0.7	0.1%
484A	Rothiemay loam, 0 to 2 percent slopes	100.6	12.5%
484C	Rothiemay loam, 2 to 8 percent slopes	1.4	0.2%
485E	Yawdim-Crago complex, 4 to 35 percent slopes	9.1	1.1%
487B	Niart-Crago complex, 0 to 4 percent slopes, fan	10.4	1.3%
493B	Crago-Musselshell complex, 0 to 4 percent slopes, fan	6.6	0.8%
497B	Musselshell-Crago complex, 2 to 4 percent slopes	47.7	5.9%
622B	Ledger, rarely flooded-Absher complex, 0 to 4 percent slopes	16.2	2.0%
Totals for Area of Interest		802.7	100.0%

Soil Map—Wheatland County Area, Montana
(Haymaker)



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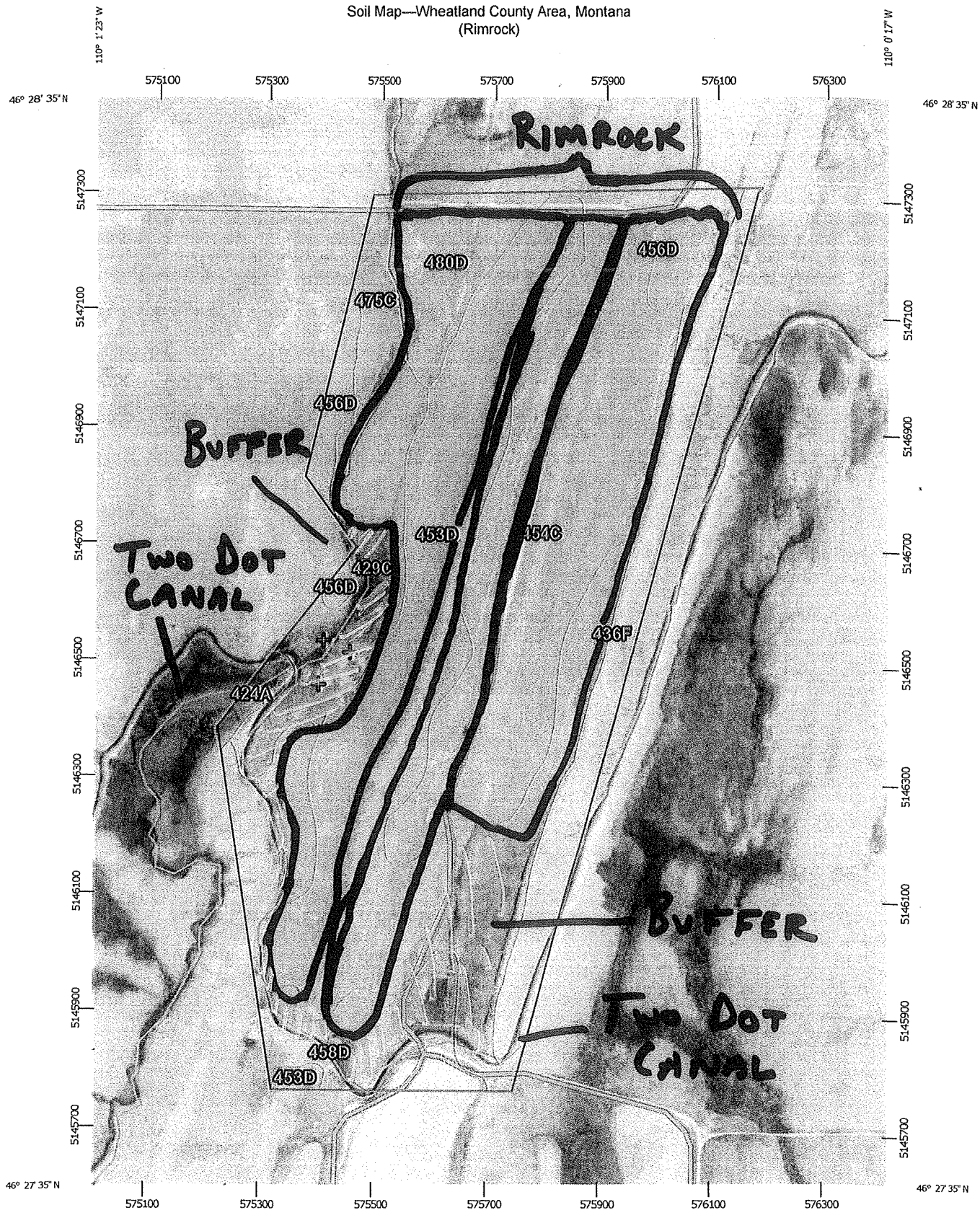
12-11-2013
Page 1 of 3

Map Unit Legend

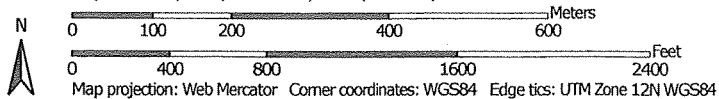
Wheatland County Area, Montana (MT624)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
424A	Havre-Hariake complex, 0 to 4 percent slopes	3.3	1.3%
429C	Gerdnam-Yanda-Creed complex, 0 to 8 percent slopes, fan	9.0	3.6%
449C	Vamey-Niart complex, 2 to 8 percent slopes	8.8	3.6%
454C	Delpont-Yamacall complex, 2 to 8 percent slopes	1.8	0.7%
456D	Cabbart-Delpont loams, 4 to 15 percent slopes	105.4	42.7%
458D	Delpont-Cabbart-Yamacall complex, 4 to 15 percent slopes	30.5	12.4%
475C	Zatoville-Kobar complex, 2 to 8 percent slopes	36.7	14.8%
480D	Yawdim-Abor complex, 4 to 15 percent slopes	0.1	0.1%
484C	Rothermay loam, 2 to 8 percent slopes	51.4	20.8%
Totals for Area of Interest		247.1	100.0%



Soil Map—Wheatland County Area, Montana
(Rimrock)



Map Scale: 1:9,050 if printed on A portrait (8.5" x 11") sheet.



Natural Resources
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National Cooperative Soil Survey

11/25/2013
Page 1 of 3

Map Unit Legend

Wheatland County Area, Montana (MT624)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
424A	Havre-Harlake complex, 0 to 4 percent slopes	2.1	0.9%
429C	Gerdrum-Vanda-Creed complex, 0 to 8 percent slopes, fan	20.3	8.6%
436F	Cabbart-Rentsac complex, 15 to 60 percent slopes	20.6	8.8%
453D	Cabbart-Rentsac complex, 2 to 15 percent slopes	78.5	33.4%
454C	Delpoint-Yamacall complex, 2 to 8 percent slopes	56.9	24.2%
456D	Cabbart-Delpoint loams, 4 to 15 percent slopes	14.0	6.0%
458D	Delpoint-Cabbart-Yamacall complex, 4 to 15 percent slopes	24.7	10.5%
475C	Zatoville-Kobar complex, 2 to 8 percent slopes	6.1	2.6%
480D	Yawdim-Abor complex, 4 to 15 percent slopes	11.6	5.0%
Totals for Area of Interest		234.9	100.0%

